

## ABSTRACT

The output probability of a mixture Gaussian HMM is given by a function of a mixture multi-dimensional Gaussian distribution or the like. The mixture multi-dimensional Gaussian distribution corresponds to a sum of multi-dimensional Gaussian distributions and each multi-dimensional Gaussian distribution corresponds to a product of one-dimensional Gaussian distributions for respective feature components. The numeric values of the one-dimensional Gaussian distributions relating to typical dispersion and averages are contained in a numeric value table (1052). Linear scalar quantization is employed for feature components of a feature vector as an object to be recognized, and information in the intermediate table (401, 402) is referred to with its quantized value as an index. The intermediate table is extracted from a global table (400). The global table contains a plurality of sets of X-direction arrays in a Y direction as arrays of address information indicative of locations of the numeric values of the one-dimensional Gaussian distributions in the numeric value table. The value of a dispersion ( $\sigma$ ) is taken into consideration upon selection of the X-direction arrays, while the value of an average ( $\mu$ ) is taken into consideration upon selection of the first location of the X-direction array. Thereby the intermediate table is extracted from the global table, and the numeric

value table is referred to with use of the address information of the location corresponding to the quantized value from the first location as an index.